



Research Paper

Assessing childhood trauma and dissociation among alcohol-dependent inpatients: clinical features, treatment histories and perceived effectiveness of care

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ABSTRACT

Background: This study is the first to examine dissociation and childhood traumatization among hospitalized alcohol-dependent (AD) patients in Hungary. We aimed to identify a subgroup of AD patients characterized by childhood trauma and dissociative symptoms, and investigated potential differences in childhood traumatization, prior treatments, perceived effectiveness of these treatments and clinical severity.

Methods: Eighty-nine AD inpatients completed the Dissociative Experiences Scale, Multidimensional Inventory of Dissociation (MID), selected sections of the SR-DDIS, and four subscales of the Traumatic Antecedents Questionnaire (neglect, emotional, physical, and sexual abuse). Additional items assessed prior treatments, perceived effectiveness, and suicide attempts. Based on trauma history and dissociation level, three groups were formed: (1) AD without trauma or dissociation, (2) traumatized AD without dissociation, and (3) dissociative–traumatized AD.

Results: Childhood trauma was reported by 76.9% of participants. The dissociative–traumatized group showed higher prevalence and longer duration of childhood sexual abuse than the traumatized group. Based on MID results, dissociative symptoms were observed exclusively in the dissociative–traumatized group, including voice hearing, identity confusion, flashbacks, derealization, and self-alteration. The dissociative–traumatized group initiated substance abuse earlier and had the youngest age at first psychiatric admission, indicating greater clinical severity. Longest remission duration and prevalence of suicide attempts also differed significantly across groups, with the dissociative–traumatized group showing the shortest abstinence duration and the highest prevalence of suicide attempts, further supporting a more severe clinical profile. Although perceived effectiveness of previous addiction treatments did not differ across groups, the dissociative–traumatized group sought psychotherapy more frequently and reported more ineffective prior treatments.

Conclusion: We identified a subgroup of AD patients with traumatization and dissociative symptoms, with more severe clinical profile and poorer treatment outcomes (perceived). Systematic assessment of childhood trauma and dissociative symptoms in AD patients is warranted, as these factors are associated with greater clinical severity and may be linked to poorer prognosis in the absence of trauma- and dissociation-informed treatment.

1. Introduction

Trauma-informed addicology is in its infancy, despite the high prevalence of childhood traumatization and trauma-related dissociative disorders among patients with substance use disorder (SUD) (Schäfer & Langeland, 2015; Sar, 2011). The prevalence of trauma history among treatment-seeking SUD patients ranges from 42–95% (Argeriou & Daley, 1997; Berry & Sellmann, 2001; Brown et al., 2003; Dansky et al., 1999;

Dansky et al., 1995; DiNitto et al., 2002; Miller & Downs, 1995; Ouimette et al., 2000), and from 22–74% among patients with alcohol use disorder (Huang et al., 2012; Langeland & Hartgers, 1998).

A history of childhood trauma affects not only the development and severity of alcohol use disorder (AUD) but also the treatment response. Patients with a history of childhood trauma develop AUD at an earlier age (Dom et al., 2007; Kaufman et al., 2007), present more severe alcohol abuse (Dom et al., 2007), and exhibit a more severe clinical

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profile (Schäfer & Najavits, 2007) compared to patients without childhood traumatization. They also demonstrate higher rates of comorbid psychiatric disorders (e.g., personality disorders, posttraumatic stress disorder) (Evren et al., 2006), relapse more often (Farley et al., 2004; Greenfield et al., 2002; Walitzer & Dearing, 2006), and benefit less from treatment (Lotzin et al., 2016) than AUD patients without trauma.

Dissociative disorders (DD) are less prevalent among SUD patients than traumatization, although dissociation is, in most cases, trauma-related. Notably, patients with dissociative disorders are among the most severely traumatized patients in psychiatric populations. The prevalence of DD among SUD patients ranges from 17.2–39% (Sar, 2011), with higher rates among patients with drug use disorders compared to those with AUD (16% versus 6.5%, respectively) (Langeland et al., 2002).

A recent cross-sectional study (Baudin et al., 2022) could identify a subgroup of patients hospitalized for alcohol use disorder (AUD) in a French addiction rehabilitation centre, who had a higher level of dissociation, higher AUD severity, a higher prevalence of childhood traumatization and higher depression, anxiety and PTSD symptoms compared to other AUD patients (with low levels of dissociation). Baudin et al. argue that for traumatized patients with high levels of dissociation, trauma-specific treatment is essential alongside addiction therapy.

Current systematic review (Julien et al., 2025) have found that childhood traumatic experiences can influence the severity of dissociative symptomatology and SUD. Moreover, the authors point to inter alia the findings of Patel et al. (2022), namely that dissociation can have a mediating effect on the link between adverse childhood experience and substance use. Julien et al. (2025) also found that the literature has addressed the vicious circle maintained by problematic substance use and posttraumatic symptomatology, but has tended to overlook the impact and role of dissociation within this cycle. The severity of SUD is exacerbated when dissociative symptomatology is present, and SUD may influence the persistence and severity of dissociative symptomatology (Caretti et al., 2018; Wegen et al., 2017, as cited in Julien et al., 2025), which should therefore be a focus of clinical attention.

Several theories address the role of traumatization and dissociation in the etiology and/or maintenance of addictive disorders. The relationship between alcohol use and dissociation can be interpreted through different perspectives. The self-medication hypothesis posits that substance use disorders develop as a response to suffering caused by traumatization, with individuals attempting to manage their emotional pain through substance use (Khantzian, 1985). This model has strong empirical support (Schäfer & Langeland, 2015). In a series of laboratory studies, Coffey et al. (2002) found that alcohol- and cocaine-dependent patients with PTSD reported greater craving following exposure to trauma-related stimuli compared to neutral stimuli. Furthermore, craving and distress responses to trauma-related images decreased after patients received six sessions of trauma-focused imaginal exposure, whereas no such changes were observed in control patients.

Chemical dissociation theory emphasises self-medication in SUD as well. According to Somer (2009), SUD is driven by a need to chemically induce a state similar to psychogenic dissociation as a defence against memories of childhood abuse and the associated overwhelming painful emotional experiences. Traumatized SUD patients retrospectively report more dissociative experiences during substance use (i.e., depersonalization and derealization) compared to patients with mild traumatization. Moreover, more intense dissociative experiences during drug use could be related to greater psychological distress during inter-use periods (i.e., craving unrelated to withdrawal symptoms). Abstaining from substance use was more distressing for these patients than for users who experienced lower levels of chemically induced dissociation. A statistical relationship was also found between retrospectively reported psychological distress during inter-use craving and current psychological dissociation measured in a detoxified state (Somer, 2009).

There are integrative, trauma-informed SUD therapy programs

available for patients with dual diagnosis (SUD and PTSD; COPE, Seeking Safety, TREM, etc.), but as far as we know there is no integrative psychotherapy program for traumatized SUD patients with dissociative disorder. In Hungary, at the time this article was written none of these trauma-informed therapy programs were available for specifically SUD patients. In our country the Minnesota program, psychiatric treatments, psychotherapy ward treatment, rehabilitation centres or AA/NA are available for the population.

2. Strategy, goals and steps of the study

This research represents the first attempt to assess dissociation and childhood traumatization among hospitalised alcohol-dependent (AD) patients in Hungary. This study is part of a larger research project in which we validated the Hungarian version of the Multidimensional Inventory of Dissociation (MID-HU) (Boytha et al., 2025). The MID-HU is the first psychodiagnostic instrument in Hungary designed for the diagnosis of dissociative disorders (DD).

The present research adopts a clinical focus, grounded in the trauma-dissociation framework. We aimed to provide empirical evidence that a significant subgroup of AD patients is characterized by childhood traumatization and dissociative symptoms. Our goal was also to examine whether this specific subgroup shows distinct patterns compared to non-traumatized and non-dissociative AD patients regarding their suicidality and treatment history (including the perceived effectiveness of previous treatments and the duration of the longest remission). Our approach remains pragmatic and clinically oriented. Rather than engaging in the theoretical debate about self-medication and chemical dissociation, we focus on the clinical implications of our findings. We argue that dissociation, as a developmental consequence of early trauma, creates a specific vulnerability that leads to an earlier onset and a more severe course of AD. This framework emphasizes the existence of a high-risk subgroup where screening for these specific markers is clinically essential. By identifying this high-risk subgroup, we aim to provide a basis for incorporating trauma-informed and dissociation-specific interventions into standard treatment protocols.

3. Method

Data collection was conducted at the Adult Psychiatry Division in Kenézy Gyula Teaching Hospital at the University of Debrecen and the Sántha Kálmán Member Hospital in Nagyálló. Inpatients at the hospitals' psychiatric and addiction departments were assessed by the wards' clinical psychologists. Before beginning the assessment, it was emphasised to the participants that they were expected to fill out the questionnaires based on sober experiences. The inclusion criteria were: adult psychiatric and alcohol-dependent patients aged between 18 and 60 who were willing to take part in the study. Participation was voluntary, and informed consent was obtained. Exclusion criteria included any form of psychosis, dementia, delirium, acute withdrawal syndrome, intellectual disability, and organic mental disorders. Patients from closed psychiatric wards were also excluded. Groups were created on the basis of the results of DES, MID and TAQ, and differences among the groups in demographic data, previous treatments, perceived treatment effectiveness, SR-DDIS results, as well as childhood trauma types and adverse childhood experiences (TAQ results) were analysed.

3.1. Materials

Data were collected between 23 March 2022 and 31 September 2023 with ethical permission from the National Scientific and Research Ethics Committee (IV/1459-3/2022/EKU). The research battery included:

1. Demographic data, questions regarding former treatment history, perceived treatment effectiveness, longest remission duration and number of suicide attempts.

2. Diagnostic instruments for assessing dissociation: Dissociative Experiences Scale (DES), Multidimensional Inventory of Dissociation (MID), and a part of the SR-DDIS including: (1) Physical complaints, (2) Schneider's first-order symptoms, (3) Symptoms associated with DID, (4) Borderline personality disorder, (5) Dissociative amnesia, (6) Dissociative fugue, (7) Depersonalization/derealization disorder, (8) Dissociative identity disorder.
3. The Traumatic Antecedents Questionnaire (TAQ) for assessing traumatization, alcohol/drug abuse before adulthood, and in the family of origin.

3.1.1. Dissociative experiences scale

The DES (Bernstein & Putnam, 1986; Carlson & Putnam, 1993) measures the frequency of 28 dissociative experiences. It is not a diagnostic instrument but serves as a screening tool for dissociative disorders. The scale demonstrates excellent internal consistency and construct validity across multiple studies (Van Ijzendoorn & Schuengel, 1996). Each item presents a statement about dissociative experiences, which subjects rate on a 10-point Likert scale from 0 to 100. A recent meta-analysis of 216 publications identified a mean DES score of 35 or above as the cut-off point of dissociative disorders (Lyssenko et al., 2018). Although the DES demonstrates high sensitivity (90%) in detecting dissociative symptoms, its specificity is notably lower in alcohol-dependent patients (54.5%) compared to psychiatric inpatients, for whom sensitivity and specificity are 100% and 83%, respectively (Tutkun et al., 1998).

3.1.2. Multidimensional inventory of dissociation (MID)

The MID is a self-report multiscale measure of dissociation developed by Paul Dell (Dell, 2006). The items are rated on an 11-point Likert-scale ranging from 0 ("never") to 10 ("always"). The instrument comprises 218 items and 23 diagnostic scales that assess the major facets of pathological dissociation. Each diagnostic scale has a mean score and a clinical significance value; a clinical significance value of 100 or above indicates that the symptom assessed by the diagnostic scale is present.

Studies have provided empirical support for the discriminant validity of the MID (Boytha et al., 2025; Dell, 2006; Gast et al., 2003; Somer & Dell, 2005). The instrument consistently demonstrates the ability to distinguish among healthy adults, heterogeneous psychiatric patients, individuals with depersonalization disorder, those with dissociative disorder not otherwise specified (DDNOS), and individuals with dissociative identity disorder (DID).

3.1.3. Self-report version of dissociative disorders interview schedule (SR-DDIS)

The interview was developed by Collin Ross (Ross et al., 1989) and has been refined several times to reflect changes in diagnostic criteria (Ross & Browning, 2016). It is a structured interview comprising 16 sections, with a total of 131 items. Each section is scored independently, with normative scores from patients with DID provided for each section; no overall score is calculated. The questions assess symptoms based on the DSM-5 criteria for dissociative disorders.

Ross and Browning (2016) demonstrated the applicability of the self-report version of the Dissociative Disorders Interview Schedule (SR-DDIS) within clinical settings. Their study revealed a strong concordance between the DDIS and SR-DDIS outcomes regarding both DSM-5 diagnoses and symptom classification. Their findings indicated that the SR-DDIS can be used interchangeably with the standard DDIS in clinical populations. In our research, we used eight subscales of SR-DDIS: Somatic Complaints, Schneiderian first-order symptoms, Symptoms associated with DID, Borderline personality disorder, Dissociative fugue, Derealization/Depersonalization, Dissociative amnesia and DID.

3.1.4. Traumatic antecedents questionnaire (TAQ)

Van der Kolk and Smyth (2010) developed the 42-item Traumatic Antecedents Questionnaire (TAQ) to assess the severity and frequency of maladaptive and adaptive experiences in childhood. The questionnaire consists of 10 subscales. Maladaptive experiences are assessed across four developmental stages: early childhood (0–6 years), latency (7–12 years), adolescence (13–18 years), and adulthood (18 years and older). In this study, we used data concerning childhood trauma (0–18 years). Respondents can indicate the severity or frequency of the traumatic events in their life on a four-point Likert scale (0 - never or not at all, 1 - rarely or a little, 2 - occasionally or moderately, 3 - often or very often). We dichotomized the scale values to enable comparison with previous studies that also used dichotomous variables. The cut-off value was set at 2; values of 0 and 1 were coded as the absence of a given trauma type, and values of 2 and 3 were coded as the presence of a given trauma type. This method was also intended to minimize potential overestimation of traumatization. We used four subscales of the TAQ in our research: Neglect, Emotional abuse, Physical abuse and Sexual abuse, as well as item 26 (regarding substance abuse) in order to create groups, to assess the prevalence of childhood traumatization and early substance abuse, and to determine the length of traumatization (severity).

3.2. Participants

A total of 195 patients participated in our study. According to their medical diagnoses, 104 patients were alcohol-dependent. Fourteen of these patients were excluded from the analysis due to incorrect completion of the TAQ questionnaire. Data from 90 patients were analysed: 32 females (36%) and 58 males (64%). Participants' ages ranged from 18 to 60 years ($M = 39.9$, $SD = 10.4$). Regarding residence, 5.6% of the sample lived in the capital city, 28.1% in the county town, 41.6% in cities and 24.7% in smaller villages. More than a third of the sample were single (37.9%), 21.8% were married, 19.5% were living in a relationship, and 20.6% were divorced or widowed. Education levels were as follows: 43.2% had completed secondary school, 22.7% had higher education (MSc or PhD), and 34.1% had a lower level of education (technical or elementary school). More than half of them were employed (55.2%), 34.5% were unemployed, 4.5% pensioned off due to disability and 5.7% were students at the time of the research.

Participants were recruited from psychiatry and addiction wards. The majority, almost two-thirds (68.5%), were being treated at the addiction ward at the time of assessment, and one-third at the psychiatry ward (31.5%). Over their lifetime, 62.9% of the sample had been treated in a psychiatry ward and 69.7% in an addiction ward. The mean duration of the longest remission was 1.98 years (725.3 days; range: 5 to 7300 days). Additionally, 24.1% had attended a self-help group (AA/NA) at some point in their lives. The mean DES score was 12.1, the mean MID score was 9.05, and the mean MID Dissociation Symptoms Scale score was 4.46.

3.2.1. Creating the study groups

We created the study groups based on participants' traumatization history and level of dissociation. If a patient reported any type of traumatization (Neglect, Emotional abuse, Physical abuse, Sexual abuse) according to their TAQ results, they were classified into the traumatized AD group. In our sample, 76.9% ($n=65$) suffered some form of traumatization in childhood, while 23.1% ($n=25$) reported no such experiences. The inclusion criteria for the dissociative symptoms group (patients who has clinically significant dissociative symptoms according to the following cut-off points) were as follows: a) $DES > 35$ (according to the meta-analysis of Lyssenko et al., 2018); and/or b) mean MID-HU > 21 (according to the MID Manual); and/or c) the MID-HU Dissociative Symptoms Scale > 9 (according to the MID Manual).

Only one patient met all the three criteria (a, b and c), while 20 patients met some but not all of the criteria. We found dissociative symptoms mainly in the traumatized AD group; only one patient without

traumatization exhibited dissociative symptoms according to the test results. As this single case was insufficient to constitute a separate group of dissociative AD without traumatization, we excluded this patient from our analysis. The final research groups were: (1) 24 alcohol-dependent patients without traumatization or dissociative symptoms (AD); (2) 44 traumatized alcohol-dependent patients without dissociative symptoms (traumatized AD) and (3) 21 traumatized alcohol-dependent patients with dissociative symptoms (dissociative-traumatized AD). The process of creating groups can be seen in [Graph 1](#). The DES and MID-HU results of the three groups can be seen in [Table 1](#).

4. Statistical analysis

Descriptive statistics were computed for all study variables. Group differences between the three addiction subgroups were examined using one-way analyses of variance (ANOVA) for continuous variables and chi-square tests for categorical variables. To keep the models parsimonious given the available sample size, each multivariable model retained four clinically relevant covariates: addiction group membership (the exposure of interest), age, sex, and previous psychiatric hospitalisation (as a proxy for overall psychiatric severity and treatment history). Residence, marital status, educational attainment, employment status, addiction-treatment history, psychotherapy history, and AA/NA attendance were not included, both because they are conceptually downstream of the clinical-severity construct already indexed by prior psychiatric treatment and because retaining them would push the events-per-variable ratio of the logistic model and the cases-per-parameter ratio of the linear models well below conventional stability thresholds. Because the raw distribution of longest abstinence duration (days) was strongly right-skewed, abstinence was modelled on the log10 scale throughout. Each model was accompanied by variance inflation factors (all GVIFs ≤ 1.29), condition indices, Cook's-distance influence diagnostics, heteroscedasticity-consistent (HC3) robust standard errors, and bias-corrected bootstrap 95% confidence intervals (2000 resamples) to verify that reported coefficients were neither collinearity- nor outlier-driven.

Because no a-priori power calculation was performed for the original study, we conducted *post hoc* sensitivity analyses to quantify the minimum detectable effect (MDE) of every reported inferential test, given the achieved sample size, $\alpha = .05$ (two-sided), and target power $1 - \beta = .80$. Linear-regression MDEs were obtained from the non-central F distribution (pwr::pwr.f2.test; Champely, 2020); the logistic-regression MDE on a single binary predictor used the Hsieh (1998) approximation, with corresponding odds ratios reported under no covariate adjustment ($\rho^2 = 0$) and under modest overlap ($\rho^2 = 0.20$). Kruskal–Wallis MDEs were derived from one-way ANOVA sensitivity (pwr::pwr.anova.test) and adjusted by the asymptotic relative efficiency (ARE) of the Kruskal–Wallis test under normality (0.955); the same ARE was applied to rescale the Mann–Whitney MDEs obtained from pwr::pwr.t2n.test. χ^2 MDEs were obtained from pwr::pwr.chisq.test. The full set of MDEs is reported in Supplementary Table S20.

Table 1
Mean DES and MID-HU scores by groups.

Measure	AD Group (<i>n</i> = 24)	Traumatized AD (<i>n</i> = 44)	Dissociative- traumatized AD (<i>n</i> = 21)
DES (Mean Score)	6.6	10.7	21.4
MID-HU (Mean Score)	2.5	5.09	24.8
MID-HU Dissociative Symptoms	0.79	1.48	14.9

5. Results

We used IBM SPSS 29.0, JASP 0.19.3.0, and R 4.x (packages car, lmtest, sandwich, boot, pROC) for statistical analysis.

5.1. Demographic data

We did not find any significant differences in the demographic data among the three groups, except for age. The dissociative-traumatized and the traumatized AD patients were significantly younger than the AD patients (AD: $M = 46.5$, $SD = 7.8$ years; traumatized AD: $M = 38.1$, $SD = 10.1$ years; dissociative-traumatized AD: $M = 36.1$, $SD = 10.6$ years; $p < .001$) (Demographic characteristics of the 3 study groups are presented in Supplementary Table S1).

5.2. Differences in the MID-HU results

5.2.1. Differences in the results of the 23 dissociation diagnostic scales of the MID-HU

When analysing the clinical significance level of the 23 dissociation diagnostic scales, we found that the AD and traumatized AD group did not reach level 100 on any scales, compared to the dissociative-traumatized AD group that reached this level on 14 scales. The dissociative-traumatized AD group reached the highest level on the following scales: Voices/Internal Struggle (Clin.sign.:173.05), Puzzlement about Oneself (Clin.sign.:158.76), Flashbacks (Clin.sign.: 156.1), Derealization (Clin.sign.:153.5) and Experiences of Self Alterations (Clin.sign.:148.8). The dissociative-traumatized AD reached the level of 100 on one amnesia scale: the 'Being told of disremembered actions' scale, had subclinical levels on other amnesia scales(Criteria C). Comparing these results with the original MID diagnostic values, the dissociative-traumatized AD group reached the level of OSDD-1a on several scales. The results on the dissociative diagnostic scales with the original MID diagnostic values can be seen in [Fig. 1](#). (Descriptive statistics for DES and MID scores by group are presented in Supplementary Table S19)

5.2.2. Dangerously toxic flashbacks

Two items of the MID (MID_105 and MID_137) were examined separately from the 23 diagnostic-scale scores of the MID-HU because they operationalize a clinically distinct construct - flashback-driven self-harm and suicidal ideation - that is directly relevant to the study's secondary clinical outcome (lifetime suicide attempts) rather than to the general dissociative symptom load already indexed by the 23 subscale scores. The two items are also the only MID-HU items that explicitly tie a dissociative intrusion (flashback) to an imminent self-destructive urge; they therefore carry immediate clinical-safety implications that the aggregated subscale scores do not convey. The remaining MID-HU items contribute to the subscale scores reported in [Section 5.2](#) and are not analysed individually here.

Both items are 11-point Likert-type ratings (0–10) with a pronounced floor effect: in the two non-dissociative groups the modal response was 0. Because this distribution violates the normality and variance-homogeneity assumptions of the one-way ANOVA, between-group differences were tested with Kruskal–Wallis rank-sum tests. Effect sizes are reported as ϵ^2 (Tomczak & Tomczak, 2014) with conventional cut-offs (small $\approx .01$, medium $\approx .06$, large $\approx .14$). Pairwise comparisons between the three addiction groups were obtained via Dunn's (1964) z tests with Bonferroni correction for three contrasts per item (adjusted $\alpha = .05$).

5.2.2.1. MID item 105 - "Having traumatic flashbacks that make you want to inflict pain on yourself". A Kruskal–Wallis test indicated a significant difference in scores across the three addiction groups ($N = 89$): $H(2) = 19.41$, $p < .001$, $\epsilon^2 = .22$ (large effect); $\eta^2H = .20$.

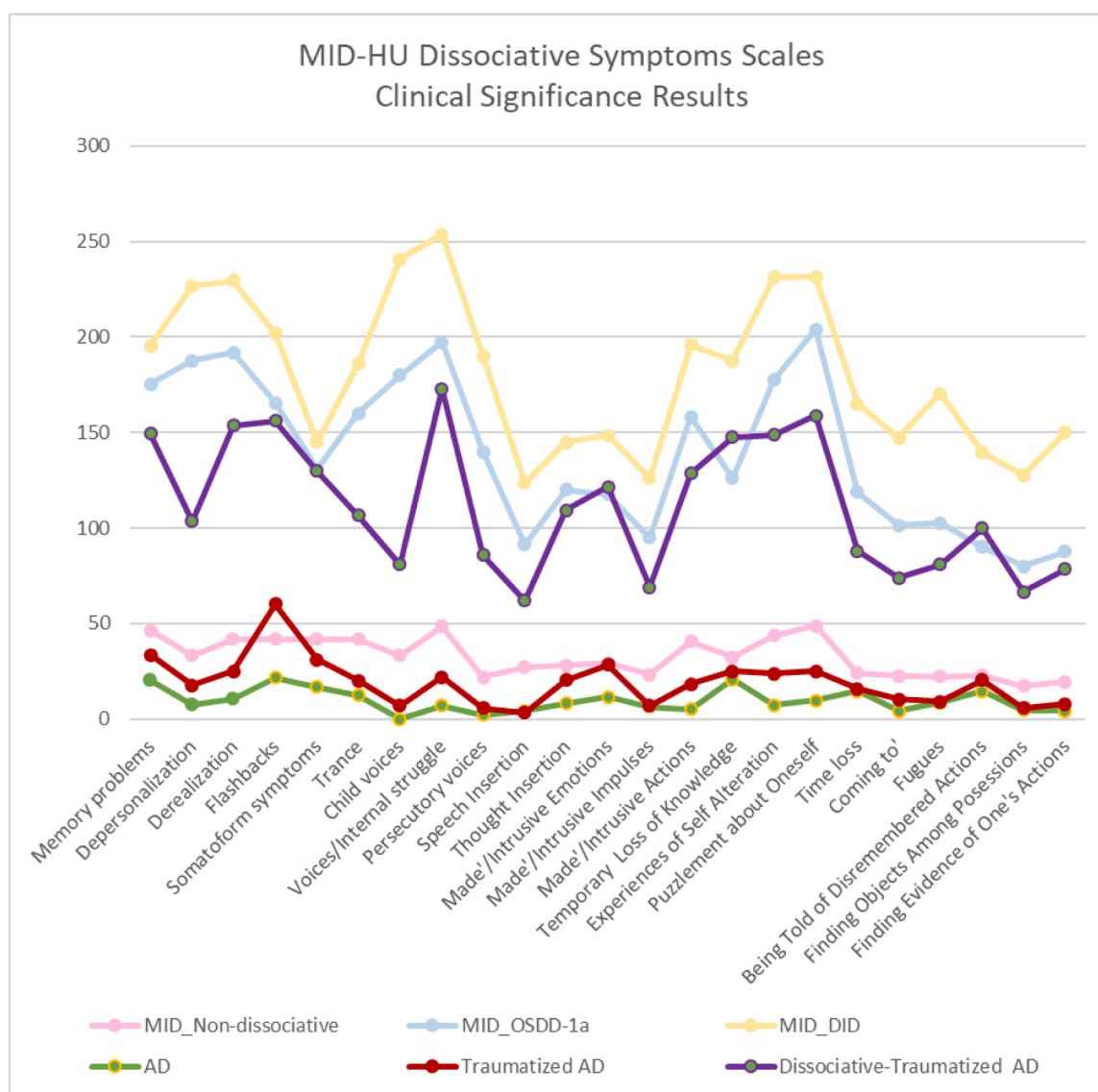


Figure 1. Clinical Significance level of the 23 dissociative diagnostic scales with (the original) MID differential diagnostic values.

Pairwise contrasts showed that scores in the dissociative-traumatized AD group were significantly higher than in both the non-traumatized AD group ($z = -4.23$, $p_{\text{Bonf}} < .001$) and the traumatized AD group ($z = -3.52$, $p_{\text{Bonf}} = .001$), whereas the non-traumatized AD and traumatized AD groups did not differ from each other ($z = -1.31$, $p_{\text{Bonf}} = .573$) (Tables 2 and 3).

5.2.2.2. MID item 137 - "Having traumatic flashbacks that make you want to die". A Kruskal–Wallis test indicated a significant difference in scores across the three addiction groups ($N = 89$): $H(2) = 25.72$, $p < .001$, $\epsilon^2 = .29$ (large effect); $\eta^2H = .28$.

Pairwise contrasts showed that scores in the dissociative-traumatized AD group were significantly higher than in both the non-traumatized AD group ($z = -4.79$, $p_{\text{Bonf}} < .001$) and the traumatized AD group ($z = -4.22$, $p_{\text{Bonf}} < .001$), whereas the non-traumatized AD and traumatized AD groups did not differ from each other ($z = -1.23$, $p_{\text{Bonf}} = .657$).

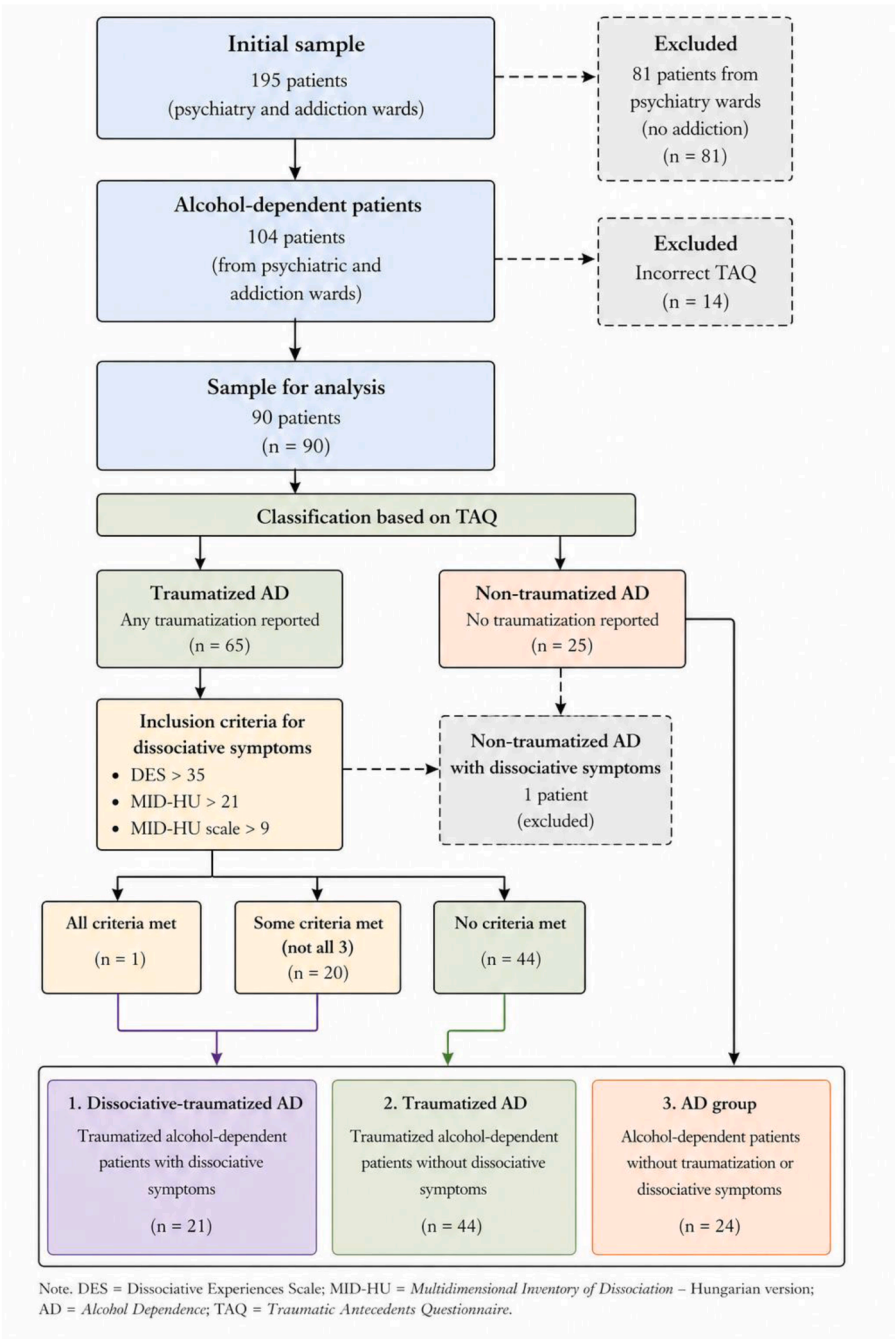
For both items, the Kruskal–Wallis test rejected the null hypothesis of equal score distributions across the three groups with a large effect size, and the Bonferroni-adjusted Dunn post-hoc tests confirmed that the group-level elevation was driven exclusively by the dissociative-traumatized AD group: it scored significantly higher than both the non-traumatized and the traumatized AD groups on each item, while the

non-traumatized and traumatized AD groups were statistically indistinguishable. These inferential results corroborate the descriptive pattern reported in Table 2: endorsement of flashback-driven self-harm and suicidal ideation is a distinguishing clinical feature of the dissociative-traumatized AD group rather than a general correlate of trauma exposure (Tables 4 and 5).

5.3. Differences in the SR-DDIS results

To examine group differences in dissociative symptoms while controlling for demographic and clinical variables, we conducted multiple linear regression analyses with addiction group, age, gender, and previous psychiatric treatment as predictors. As shown in Table 6, the dissociative-traumatized AD group showed significantly elevated symptoms across all four DDIS subscales compared to the AD reference group.

Membership in the dissociative-traumatized AD group was a strong and significant predictor of symptoms associated with DID ($\beta = 2.36$, 95% CI [1.41, 3.30], $p < .001$), Schneiderian symptoms ($\beta = 1.79$, 95% CI [0.74, 2.85], $p = .001$), borderline personality disorder features ($\beta = 3.75$, 95% CI [2.48, 5.03], $p < .001$), and somatic complaints ($\beta = 7.53$, 95% CI [3.49, 11.58], $p < .001$). In the somatization model, male gender



Graph 1. Flowchart of the process of creating groups.

Table 2
Distribution per group (non-parametric summary).

Group	n	Median	IQR	Range	Mean (SD)
AD	24	0.0	0.0–0.0	0–0	0.00 (0.00)
traumatized AD	44	0.0	0.0–0.0	0–9	0.45 (1.58)
dissociative-traumatized AD	21	0.0	0.0–5.0	0–10	2.62 (3.44)

was a significant negative predictor ($\beta = -4.40$, $p = .003$) and absence of previous psychiatric treatment was associated with lower somatization scores ($\beta = -2.85$, $p = .045$). In the BPD model, age was a significant negative predictor ($\beta = -0.068$ per year, $p = .003$) and absence of previous psychiatric treatment was also associated with lower BPD scores (β

Table 3
Pairwise contrasts in the three groups (Dunn's post-hoc comparisons (Bonferoni-adjusted)).

Contrast	z	p (raw)	p (Bonferroni)
AD vs. traumatized AD	-1.31	.191	.573
AD vs. dissociative-traumatized AD	-4.23	< .001	< .001
traumatized AD vs. dissociative-traumatized AD	-3.52	< .001	.001

= -1.28, $p = .005$). Model fit: Somatization Adj $R^2 = .236$, $F(5, 82) = 6.39$, $p < .001$; Schneiderian Adj $R^2 = .210$, $F(5, 80) = 5.51$, $p < .001$; DID-associated symptoms Adj $R^2 = .273$, $F(5, 82) = 7.52$, $p < .001$; BPD Adj $R^2 = .483$, $F(5, 81) = 17.09$, $p < .001$. Breusch–Pagan tests indicated

Table 4

Distribution per group (non-parametric summary).

Group	n	Median	IQR	Range	Mean (SD)
AD	24	0.0	0.0–0.0	0–5	0.21 (1.02)
traumatized AD	44	0.0	0.0–0.0	0–10	0.55 (1.72)
dissociative-traumatized AD	21	2.0	0.0–4.0	0–10	3.05 (3.47)

Table 5

Pairwise contrasts in the three groups (Dunn's post-hoc comparisons (Bonferroni-adjusted)).

Contrast	z	p (raw)	p (Bonferroni)
AD vs. traumatized AD	-1.23	.219	.657
AD vs. dissociative-traumatized AD	-4.79	< .001	< .001
traumatized AD vs. dissociative-traumatized AD	-4.22	< .001	< .001

heteroscedasticity in the Schneiderian, DID-associated, and BPD models

Table 6

Descriptive statistics (N, mean, SD) of the SR-DDIS subscales by group.

SR-DDIS subscale	n (AD)	M (AD)	SD (AD)	n (Traumatized AD)	M (Traumatized AD)	SD (Traumatized AD)	n (Dissociative-traumatized AD)	M (Dissociative-traumatized AD)	SD (Dissociative-traumatized AD)
Somatic Complaints	23	8.22	5.82	44	10.16	6.17	21	16.05	7.87
Schneider's first-order symptoms	21	0.05	0.21	44	0.23	0.74	21	2.05	2.97
Symptoms associated with DID	23	0.30	0.55	44	1.07	1.06	21	2.81	2.46
Borderline personality disorder	23	0.39	0.94	44	2.12	2.17	21	5.14	2.79

Table 7

Multiple linear regression analyses of the SR-DDIS subscales.

Outcome	Predictor	β	HC3 SE	95% CI (HC3)	p	Partial R ²
Somatization (Adj R ² = .236; F(5,82) = 6.39, p < .001)	Traumatized AD vs. AD	2.46	1.66	[-0.80, 5.72]	.160	0.154
	Dissociative-traumatized AD vs. AD	7.53	2.40	[2.82, 12.24]	<.001	
	Age (per year)	0.01	0.07	[-0.12, 0.15]	.832	0.001
	Sex (male vs. female)	-4.40	1.52	[-7.37, -1.42]	.003	0.105
	Prior psychiatric hospitalisation (no vs. yes)	-2.85	1.43	[-5.65, -0.04]	.045	0.048
Schneiderian first-order symptoms (Adj R ² = .210; F(5,80) = 5.51, p < .001)	Traumatized AD vs. AD	-0.07	0.26	[-0.58, 0.44]	.878	0.208
	Dissociative-traumatized AD vs. AD	1.79	0.73	[0.35, 3.23]	.001	
	Age (per year)	-0.01	0.02	[-0.05, 0.04]	.689	0.002
	Sex (male vs. female)	0.50	0.35	[-0.20, 1.19]	.170	0.023
	Prior psychiatric hospitalisation (no vs. yes)	-0.42	0.27	[-0.96, 0.11]	.238	0.017
Symptoms associated with DID (Adj R ² = .273; F(5,82) = 7.52, p < .001)	Traumatized AD vs. AD	0.61	0.24	[0.14, 1.08]	.134	0.258
	Dissociative-traumatized AD vs. AD	2.36	0.53	[1.32, 3.39]	<.001	
	Age (per year)	-0.003	0.015	[-0.03, 0.03]	.848	0.000
	Sex (male vs. female)	0.21	0.35	[-0.47, 0.90]	.521	0.005
	Prior psychiatric hospitalisation (no vs. yes)	-0.45	0.29	[-1.01, 0.11]	.171	0.023
Borderline personality disorder (Adj R ² = .483; F(5,81) = 17.09, p < .001)	Traumatized AD vs. AD	0.99	0.44	[0.14, 1.85]	.076	0.330
	Dissociative-traumatized AD vs. AD	3.75	0.64	[2.50, 5.01]	<.001	
	Age (per year)	-0.07	0.02	[-0.11, -0.03]	.003	0.104
	Sex (male vs. female)	-0.47	0.47	[-1.39, 0.45]	.299	0.013
	Prior psychiatric hospitalisation (no vs. yes)	-1.28	0.41	[-2.09, -0.48]	.005	0.094

(p < .01); therefore HC3-robust standard errors and bootstrap confidence intervals were used to verify the significance of the group effects, which remained robust in all four outcomes (Table 7).

Coefficients from multiple linear regressions predicting the four SR-DDIS subscales (N = 86–88). Each model adjusts for addiction group (AD = reference), age, sex (female = reference), and previous psychiatric hospitalisation (yes = reference). Standard errors are heteroscedasticity-consistent (HC3); 95% confidence intervals are HC3-based. Partial R² is reported per predictor.

5.4. Treatment history and perceived effectiveness

Across the total sample (N = 87), 57 participants (65.5%) had at some time been treated in a psychiatry ward and 59 participants (67.8%) in an addiction ward.

At the time of assessment, 40 of 58 respondents (68.5%) were currently being treated in an addiction ward. Treatment frequency and perceived treatment effectiveness across the three groups are presented in Supplementary Tables S6–S9. Among those who had received treatment, 30 of 58 (51.7%) reported that previous psychiatric treatment had

been ineffective, and 30 of 60 (50.0%) reported that previous addiction treatment had been ineffective.

Psychotherapy experience differed among groups ($\chi^2 = 8.76$, $df = 2$, $p = .013$).

The dissociative-traumatized AD group reported the highest rate of previous psychotherapy (15 of 21 = 71.4%), compared with traumatized AD (16 of 43 = 37.2%) and AD (4 of 23 = 17.4%) groups. The number of therapists consulted over their lifetime differed significantly across groups. Individuals in the dissociative-traumatized AD group reported the highest number of previous therapists, exceeding two on average ($M = 2.64$, $SD = 3.40$). In comparison, participants in the traumatized AD group reported approximately one previous therapist ($M = 1.11$, $SD = 1.62$), and those in the non-traumatized AD group reported fewer than one ($M = 0.79$, $SD = 1.67$). The overall group difference was statistically significant ($p < .001$), indicating that the dissociative-traumatized AD group had substantially greater lifetime treatment exposure than the other groups. Moreover, a substantial proportion of individuals in the dissociative-traumatized AD group (83.3%) reported having received previous treatments for emotional or mental health problems that they perceived as ineffective. This rate was markedly higher than that observed in the traumatized AD group (50%) and the non-traumatized AD group (30%). The overall group difference was statistically significant ($p < .001$). (See Supplementary Table 14).

5.5. Suicide attempts

The prevalence of suicide attempts differed descriptively across groups: 3 out of 23 (13.0%) in AD, 11 out of 43 (25.6%) in traumatized AD, and 9 out of 21 (42.9%) in dissociative-traumatized AD. A multiple logistic regression predicting lifetime suicide attempts ($N = 87$, events = 23, events per variable = 4.6) with addiction group, age, gender, and previous psychiatric treatment as predictors showed that membership in the dissociative-traumatized AD group was significantly associated with a higher likelihood of suicide attempts relative to the AD reference group ($\beta = 1.65$, $OR = 5.21$, 95% $CI [1.12, 30.05]$, $p = .044$). Trauma-only group membership was not a significant predictor ($OR = 2.32$, 95% $CI [0.58, 11.94]$, $p = .262$). Overall model fit was modest: likelihood-ratio $\chi^2(5) = 6.22$, $p = .285$; McFadden $R^2 = .062$; Nagelkerke $R^2 = .101$; Brier score = .182; $AUC = 0.664$, 95% $CI [0.540, 0.789]$. Given the low events-per-variable ratio, the significant group effect should be interpreted with caution and confirmed in a larger sample (Table 8).

5.6. Duration of longest remission

Across participants who reported remission data ($N = 56$), group means (in days) were: AD ($M = 1250.2$, $SD = 1950.4$; $n = 13$),

Table 8

Multiple logistic regression predicting lifetime suicide attempts ($N = 87$; 23 events; events per variable = 4.6). Reference categories: addiction group = AD; sex = female; previous psychiatric hospitalisation = yes. Model fit: likelihood-ratio $\chi^2(5) = 6.22$, $p = .285$; McFadden $R^2 = .062$; Nagelkerke $R^2 = .101$; Brier score = .182; $AUC = 0.664$, 95% $CI [0.540, 0.789]$.

Predictor	β	SE	OR	95% CI (OR)	p
(Intercept)	-2.29	1.46	0.10	[0.01, 1.63]	.116
Traumatized AD vs. AD	0.84	0.75	2.32	[0.58, 11.94]	.262
Dissociative-traumatized AD vs. AD	1.65	0.82	5.21	[1.04, 25.98]	.044
Age (per year)	0.01	0.03	1.01	[0.96, 1.07]	.612
Sex (male vs. female)	0.03	0.54	1.03	[0.36, 3.10]	.950
Prior psychiatric hospitalisation (no vs. yes)	-0.50	0.56	0.60	[0.19, 1.77]	.371

traumatized AD ($M = 685.2$, $SD = 1126.5$; $n = 29$), and dissociative-traumatized AD ($M = 321.2$, $SD = 447.9$; $n = 14$) (Table 9). Because the raw distribution was strongly right-skewed, remission duration was log10-transformed prior to modelling. A multiple linear regression on log10 remission duration with addiction group, age, gender, and previous psychiatric treatment as predictors fit the data acceptably ($Adj R^2 = .212$, $F(5, 50) = 3.95$, $p = .004$). Membership in the dissociative-traumatized AD group was associated with significantly shorter remission compared with the AD reference group ($\beta = -0.56$ log10 days, 95% $CI [-1.07, -0.05]$, $p = .031$), whereas trauma-only group membership was not ($\beta = -0.24$, $p = .265$). Age was a significant positive predictor of remission duration ($\beta = 0.024$ per year, $p = .008$); gender and previous psychiatric treatment were not significant. Breusch-Pagan ($p = .66$) and Shapiro-Wilk ($p = .80$) tests indicated that homoscedasticity and residual normality were satisfied in the log-transformed model (Table 10).

5.7. Childhood trauma characteristics

Among participants who reported childhood-trauma information ($N = 87$), we examined the prevalence of specific trauma types and early substance exposure.

The duration of traumatization was assessed using the TAQ age-period categories, reflecting the number of developmental periods in which participants reported experiencing trauma. Significant group differences emerged only with respect to the prevalence and duration of childhood sexual abuse. The prevalence of childhood sexual abuse was higher in the dissociative-traumatized AD group (31.3%) than in the traumatized AD group (9.1%), $X^2(1) = 4.52$, $\Phi = 0.274$, Cramer's $V = 0.274$, $p = .034$. The groups also differed significantly in the length of childhood sexual abuse ($p = .037$). No significant differences were observed between the groups for any other trauma types or for the overall duration of traumatization.

Family substance abuse during childhood (ages 0–18) was reported by 46 of 87 (52.9%) participants, with significantly higher rates in the dissociative-traumatized AD group (15 of 19 = 78.9%) than in the AD (8 of 24 = 33.3%) and traumatized AD (23 of 44 = 52.3%) groups ($\chi^2 = 8.87$, $df = 2$, $p = .012$; see Supplementary Table S12).

Participants' own substance use during childhood/adolescence (ages 0–18) was reported by 30 of 87 (34.5%) overall, with rates of 12.5% (3 of 24) in AD, 38.6% (17 of 44) in traumatized AD, and 52.6% (10 of 19) in dissociative-traumatized AD ($\chi^2 = 8.24$, $df = 2$, $p = .016$; see Supplementary Table S13).

Detailed TAQ results, including prevalence and severity of specific trauma types (neglect, emotional abuse, physical abuse, sexual abuse) across developmental periods, are presented in Supplementary Tables S15–S16.

6. Discussion

The aim of our study was to investigate traumatization and dissociative symptoms among hospitalized alcohol-dependent (AD) inpatients. Our primary goal was to examine if there is a subgroup of alcohol-dependent inpatients with childhood traumatization and clinically significant dissociative symptoms. Furthermore, we aimed to examine whether there are significant differences among the

Table 9

Descriptive statistics for the longest time of remission by group.

Group	N	Mean (days)	Mean (years)	Min	Max	SD (days)
AD	13	1250.2	3.42	0.65 years	20 years	1950.3
Traumatized AD	29	685.1	1.87	5 days	12 years	1126.5
Dissociative-traumatized AD	14	321.2	0.87	2 weeks	4 years	447.8

Table 10

Multiple linear regression predicting the log10-transformed longest remission duration (days) ($N = 56$). Reference categories: addiction group = AD; sex = female; previous psychiatric hospitalisation = yes. Model fit: Adj $R^2 = .212$, $F(5, 50) = 3.95$, $p = .004$. Breusch–Pagan $p = .66$; Shapiro–Wilk $p = .80$. Standard errors are ordinary-least-squares (homoscedasticity satisfied).

Predictor	β (log10 days)	SE	95% CI	p
(Intercept)	1.81	0.48	[0.85, 2.77]	<.001
Traumatized AD vs. AD	-0.24	0.22	[-0.68, 0.19]	.265
Dissociative-traumatized AD vs. AD	-0.56	0.25	[-1.07, -0.05]	.031
Age (per year)	0.024	0.009	[0.007, 0.041]	.008
Sex (male vs. female)	-0.09	0.18	[-0.46, 0.28]	.625
Prior psychiatric hospitalisation (no vs. yes)	-0.13	0.18	[-0.50, 0.23]	.466

traumatized-dissociative group and the non-traumatized and traumatized non-dissociative groups. To the best of our knowledge, this is the first study examining the differences in former treatments, the perceived effectiveness of these treatments, and the longest time of remission and suicidality among non-traumatized alcohol and traumatized alcohol-dependent patients with or without dissociative symptoms.

In our sample, more than two-thirds (76.9%) of the patients suffered some type of childhood traumatization (neglect, emotional-, physical or sexual abuse). Individuals in the dissociative-traumatized AD group showed a higher prevalence and longer duration of childhood sexual abuse compared to the traumatized AD group, whereas no group differences were observed for other trauma types or for overall traumatization duration. This pattern suggests a potentially specific association between dissociative features and childhood sexual abuse rather than a generalized effect of trauma exposure. The high prevalence of traumatization and the connection between childhood sexual abuse and dissociative features are similar to other international findings (Huang et al., 2012; Langeland & Hartgers, 1998). The elevated rates of traumatization observed in the present sample may be partly attributable to the low socioeconomic status of the two Hungarian regions where data collection was conducted.

Regarding the dissociative features, there were significant differences in the results of each subscale of the SR-DDIS among the three groups; the dissociative-traumatized AD group had the highest scores. According to the MID results, the dissociative-traumatized AD group had significantly higher scores on each MID scale and as regards the clinical significance level of the scales. The AD and traumatized AD group did not reach the level of 100 on any scales, compared to the dissociative-traumatized AD group which reached this level on 14 scales. The dissociative-traumatized AD group suffered mainly from voices/internal struggle, puzzlement about themselves, flashbacks (which can be toxic and make them want to inflict pain on themselves or die), derealization and experiences of self alterations. They reached the level of 100 on one amnesia scale: the 'Being told of disremembered actions' scale, had subclinical levels on other amnesia scales. These amnesia findings may reflect mixed underlying processes, the precise clinical significance of which cannot be determined within the scope of this study. Further research is needed to better understand this phenomenon.

Consistent with other research findings (Dom et al., 2007; Kaufman et al., 2007), we found that the two traumatized groups began abusing substances at a younger age (before 18 years old). The dissociative-traumatized AD group had their first admission to the psychiatry ward at the youngest age (mean age: 25.8 years) compared to the other two groups (AD: 36.7 years, traumatized AD: 32.6 years). This suggests that the dissociative-traumatized AD group had more severe clinical features than the other two groups.

There were no significant differences among the groups in the perceived effectiveness of former addiction treatments. However, the membership in the dissociative-traumatized AD group was associated with significantly shorter remission compared with the AD reference group, whereas trauma-only group membership was not. Age was a significant positive predictor of remission duration. Descriptively, the remission duration was the longest in the AD group and progressively shorter in the traumatized and dissociative-traumatized AD groups. These results indicate that complex childhood traumatization with dissociative features—rather than the presence of trauma alone—may be a predicting factor for less favourable remission outcomes. Dissociation may therefore represent a clinically relevant risk factor for relapse and/or unstable recovery trajectories. The substantial inter-individual variability in remission duration indicates that remission trajectories cannot be adequately explained by group membership alone. This suggests marked heterogeneity across individuals, implying that additional mediating or moderating factors (e.g., comorbid psychiatric conditions, social support, or type of treatment) are likely to play an important role, as well.

Regarding suicide attempts our results showed that while suicide attempts were detectable in 13% of alcohol addicts, almost half (42.9%) of the dissociative-traumatized AD patients have attempted suicide in their lifetime. Furthermore, membership in the dissociative-traumatized AD group was significantly associated with a higher likelihood of suicide attempts relative to the AD reference group ($OR = 5.21$), while traumatized AD group membership was not a significant predictor. An important and related finding could be that only the dissociative-traumatized AD group had dangerously toxic flashbacks (flashbacks that are emotionally so overwhelming that they make them want to inflict pain on themselves or to die) in our sample. These results point toward a potential link between overwhelming post-traumatic symptoms and suicidality in dissociative patients. Whether such intolerable symptoms directly precipitate suicide remains a subject for further investigation.

Regarding psychotherapy treatment we found that dissociative-traumatized AD patients seek psychotherapeutic help more actively than the other two groups. Almost two-thirds of them have attended psychotherapy, while only a small proportion of the AD group (17.4%) have done so. They have seen more therapists, and the majority of them (83.3%) claimed that they have had treatment for their emotional or mental problems which they perceived as ineffective, compared to the one-third of the AD group (30%) that felt the same.

In our study, we have identified a subgroup among patients with alcohol-dependence, characterized by both childhood trauma and dissociative symptoms. Our findings support the trauma-dissociation theoretical framework in this patient population. Our results clearly demonstrate that the traumatized-dissociative group exhibited the least favourable outcomes across all investigated areas, including higher suicidality, lower abstinence rates and poorer overall treatment indicators compared to alcohol-dependent patients without traumatization and traumatized SUD patients without dissociative symptoms. Notably, patients in this high-severity group entered inpatient care at an earlier age and seem to actively seek help, yet they tend to perceive these interventions as ineffective. Our results highlight that, beyond the presence of childhood trauma, dissociative symptoms hold the greatest prognostic value in the treatment of alcohol dependence. Since the traumatized-dissociative subgroup showed significantly poorer outcomes regarding abstinence and suicide risk, integrating specific, trauma-informed interventions targeting dissociation alongside standard addiction protocols is warranted. Ultimately, these findings may contribute to both a deeper understanding and more effective clinical management of this vulnerable patient population.

7. Limitation of the study

A key limitation of this study is the relatively small sample size,

which may affect the generalizability of the findings. With the achieved sample sizes, several analyses had limited sensitivity to small effects. Null results should be interpreted as inconclusive rather than as evidence of no effect. Holding α at .05 and power at .80, the multiple linear regressions on the four DDIS subscales ($N = 86\text{--}88$, $k = 5$ predictors) were sensitive to omnibus effects of $f^2 \geq 0.16$ ($*R^2 \approx 0.14$) and to single-predictor effects of $f^2 \geq 0.10$ (partial $R^2 \approx 0.09$; |standardised $\beta| \geq 0.30$ in the orthogonal-predictor case). The corresponding regression on log-transformed longest-remission days ($N = 56$) was sensitive only to larger effects (omnibus $f^2 \geq 0.26$; single predictor $f^2 \geq 0.16$, $|\beta| \geq 0.37$). The logistic regression predicting lifetime suicide attempts ($N = 87$, 23 events; events-per-variable = 4.6) was sensitive to omnibus pseudo- $R^2 \geq 0.14$ and to odds ratios of approximately 3.9–4.8 for a single binary predictor with sample prevalence between 25% and 50% (rising to 4.6–5.8 once moderate overlap with covariates is assumed). The Kruskal–Wallis tests on the toxic flashback indicators ($N = 89$, three groups) were sensitive to $\epsilon^2/\eta^2_H \approx 0.11$ (Cohen's $f \approx 0.34$); the χ^2 tests on three-group categorical contrasts ($N = 87$, $df = 2$) detected effects of Cohen's $w \geq 0.33$, and the 2×2 contrast for childhood sexual abuse ($N = 60$) detected $w \geq 0.36$. Pairwise Mann–Whitney contrasts among the diagnostic subgroups had MDEs of $d \approx 0.74\text{--}0.88$ (rank-biserial $r \approx 0.35\text{--}0.40$). Smaller true effects than these – particularly within the longest-remission subsample and in the rarer-pair contrasts – may have been missed. Full per-test MDEs are reported in Supplementary Table S21.

The reliance only on self-report questionnaires (and not on SCID-D or other interview) could result in response biases. The cross-sectional nature of the study could result in further biases, as these inpatients are in their early abstinence phase, and were currently under psychiatric or addiction treatment and pharmacotherapy that could have an effect on their mental state. Moreover, the dissociative and substance experiences are difficult to distinguish. Our results relied on how much these inpatients could differentiate these experiences, which could lead to further response biases. The recall of childhood traumatization could cause further biases, in either direction; over-, and underreporting, depending on the personality of the patients, or possible amnesia of the trauma. Future research should include larger samples and employ structured clinical interviews, such as the SCID-D, to diagnose dissociative disorders in this population, resulting in more reliable data and insight in this field.

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Data statement

Data is available from the corresponding author upon reasonable request.

CRedit authorship contribution statement

Zsófia Boytha: Writing – original draft, Visualization, Methodology, Investigation, Conceptualization. **Nándor Hajdú:** Software, Methodology, Formal analysis. **Ákos Münnich:** Software, Methodology, Formal analysis. **Judit Molnár:** Writing – review & editing, Supervision, Methodology, Conceptualization.

Declaration of competing interest

The authors declare no conflict of interest related to the present study.

Supplementary materials

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